SCIENCE FOR SOLUTIONS

NOAA COASTAL OCEAN PROGRAM
Decision Analysis Series No. 23, Volume 2

SCIENCE-BASED RESTORATION MONITORING OF COASTAL HABITATS

Volume Two: Tools for Monitoring Coastal Habitats

Gordon W. Thayer
Teresa A. McTigue
Ronald J. Salz
David H. Merkey
Felicity M. Burrows
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April 2005

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE
NATIONAL CENTERS FOR COASTAL OCEAN SCIENCE
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DECISION ANALYSIS SERIES

The Decision Analysis Series has been established by NOAA's Coastal Ocean Program (COP) to present documents that contain analytical treatments of major issues or topics for coastal resource decision makers. The issues, topics, and principal investigators have been selected through an extensive peer review process. To learn more about the COP or the Decision Analysis Series, please write:

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Cover Photo. Left to right
Top row.

1. Andrew Bergen, NYC Parks Natural Resources Group, taking vegetative stand data from a plot at Old Place Marsh, Staten Island, NY as part of an effort to monitor intertidal low marsh 10 years after restoration (1993), for the 1990 Exxon Bayway oil spill. Photo courtesy of Carl Alderson, NOAA Restoration Center.
2. Reseacher measuring the length of fish from a sample. Photo courtesy of the NOAA Restoration Center.
3. Martha Carlson, a researcher at the USGS, records plot information with a geographic position system (GPS) unit. Photo courtesy of Doug Wilcox, US Geological Survey.
4. Small coral colonies were collected on pipe surfaces of know age to determine growth rate of corals on the artificial reef. Photo courtesy of Dr. James P. McVey, NOAA Sea Grant Program. http://www.photolib.noaa.gov/reef/reef0165.htm

Middle Row

1. Photo of fish caught in gill net. Photo courtesy of NOAA/GLERL Photo Gallery. http://www.glerl.noaa.gov/photogallery
2. Restored marsh in Patuxent River, Jug Bay, part of the Chesapeake Bay NERR in MD. Photo courtesy of Teresa McTigue, NOAA/NOS.
3. Young chinook salmon being collected with a seine from the Lower Duwamish Waterway, Seattle, WA. Photo courtesy of Peter Heltzel, Science Application International Corporation (SAIC), U.S. Environmental Protection Agency website. http://yosemite.epa.gov/R10/CLEANUP.NSF/0/ac7eca9a96bfc94488256d5800538c74?OpenDocument

Bottom Row

1. A researcher collecting a plankton tow. Photo courtesy of the NOAA/GLERL Photo Gallery. http://www.glerl.noaa.gov/photogallery
2. Water quality monitoring for a Community-Based Restoration Program (CRP) on Duck Creek Water Quality and Anadromous Fish Habitat Restoration. Photo courtesy of K. Koski of the NOAA Auk Bay Laboratory. http://www.photolib.noaa.gov/habrest/r0003036.htm
3. Ponar grab sediment sampler. Photo courtesy of the NOAA/GLERL Photo Gallery. http://www.glerl.noaa.gov/photogallery
4. Collecting water samples for acid rain analysis in a Chesapeake wetland tributary, Parkers Creek, Calvert County, MD. Photo courtesy of Mary Hollinger, NOAA/NODC. http://www.photolib.noaa.gov/coastline/line0687.htm
5. Diver conducts point counts of reef fish as part of the National Undersearch Research Program (NURP). Photo courtesy of Reese, NOAA/OAR/NURP. http://www.photolib.noaa.gov/nurp/nur05527.htm

Science for Solutions

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Acknowledgments

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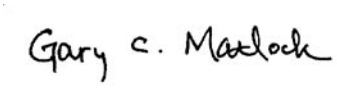
Note to Readers

Science-Based Restoration Monitoring of Coastal Habitats, Volume Two: Tools for Monitoring Coastal Habitats is a guidance manual that provides technical assistance and useful tools for the development and implementation of sound scientific monitoring of coastal restoration efforts. It also provides detailed information of the habitats, an inventory of coastal restoration monitoring program, a review of monitoring techniques manuals and quality control/quality assurance documents, an overview of governmental acts affiliated with monitoring, cost analysis of monitoring expenses, a glossary of terms, and a discussion of socioeconomic issues affiliated with coastal habit restoration.

The National Centers for Coastal Ocean Science (NCCOS) provide an essential point through which NOAA, together with other organizations with responsibilities for the coastal environment and its resources, can make significant strides toward finding solutions to critical problems. By working together toward these solutions, we can ensure the sustainability of these coastal resources and allow for compatible economic development that will enhance the well-being of the Nation now and in future generations.

A specific objective of the NCCOS is to provide the highest quality scientific information to coastal managers in time for critical decision making and in formats useful form these decisions. To this end, the Decision Analysis Series was developed by the Coastal Ocean Program to synthesize information on issues of high priority to coastal managers. As a contribution to the Decision Analysis Series, this report provides a critical synthesis of information need to successfully plan and conduct a coastal habitat restoration monitoring program. A list of available documents in the Decision Analysis Series can be found on the inside back cover.

As with all of its products, the NCCOS is very interested in ascertaining the utility of *Science-Based Restoration Monitoring of Coastal Habitats, Volume Two: Tools for Monitoring Coastal Habitats*, particularly in regard to its application to the monitoring and management decision process. Therefore, we encourage you to write, fax, call, or email us with your comments. Please be assured that we will appreciate these comments, either positive or negative, and that they will help us direct our future efforts. Our contact information is below.



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